BEFORE
THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

DOCKET NO. 2019-224-E
DOCKET NO. 2019-225-E

In the Matter of:	)	
	)	
South Carolina Energy Freedom Act (House Bill 3659) Proceeding Related to S.C. Code Ann. Section 58-37-40 and Integrated Resource Plans for Duke Energy Carolinas, LLC and Duke Energy Progress, LLC	)	**JOINT COMMENTS OF DUKE ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC**

Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP") together, (the "Companies" or "Duke Energy"), by and through counsel, hereby respectfully file these joint comments with the Public Service Commission of South Carolina ("Commission" or "PSCSC") in the above-referenced dockets. These comments address the filing requirements for the Companies' Integrated Resource Plans ("IRPs") as required by the newly-enacted Act 62 as codified at SC Code Ann. 58-37-40(B)(1), and the procedural steps related to same.

I. Summary of Filing

In Duke Energy's opinion, the best course of action for the Commission to take is to heed the direction of Act 62 by allowing the Companies their opportunity to meet Act 62 obligations by making IRP filings consistent with the statute, and, after litigated hearings, identify if there are any deficiencies in those filings as compared to the detailed requirements of the statute. That is the simplest course of action and the best use of Commission resources and parties' time.

If any party wishes to reach out to the Companies to discuss the Companies' plans for their IRP filings to be made in South and North Carolina in September 2020, Duke

Energy welcomes the conversation and feedback. Additionally, as shared by the Companies today with several parties, the Companies will be continuing prior stakeholder outreach and increasing those outreach efforts through additional forums for stakeholder input on information for the IRPs. The Companies will be conducting forums with stakeholders this spring in both South and North Carolina to provide a transparent opportunity for participants to engage, whereby the Companies can share more information about the IRP process, including plans to satisfy regulatory requirements in both South and North Carolina, as well as solicit feedback from stakeholders and address questions. Duke Energy plans to invite all parties in this docket and the comparable North Carolina docket to participate in those sessions.

Duke Energy is also willing to present its plans to the Commission in a properly noticed allowable ex parte briefing (once intervention closes to ensure all parties are identified), and to further elucidate any of the comments that the Commission wishes to discuss further.

Duke Energy recognizes that Act 62 empowers the Commission to promulgate regulations pertaining to IRPs and, of course, the Companies are willing to participate in such rulemakings upon initiation by the Commission. However, as stated in prior legal filings in these dockets, it is the Companies' position that no generic workshop, generic docket, or guideline process can – by law – circumvent or supplant the promulgation of regulations as to the quantum or specificity of what should be included in the IRPs, especially given that the General Assembly unanimously spelled out – in specific detail – the information that should be included in IRPs.

Again, the General Assembly gave more than sufficient direction for the Companies' IRPs and, should the Commission require it, the General Assembly also allowed for the promulgation of regulations. S.C. Code Ann. § 58-37-40(E) ("The commission is authorized to promulgate regulations to carry out the provisions of this section."). However, in the interest of parties' time and Commission resources, it is more than reasonable to give the Companies an opportunity to meet the very detailed statutory direction provided to the Commission and utilities as laid out in SC Code Ann 58-37-40(B):

> **(B)(1) An integrated resource plan shall include all of the following:**
>
> **(a) a long-term forecast of the utility's sales and peak demand under various reasonable scenarios;**
> **(b) the type of generation technology proposed for a generation facility contained in the plan and the proposed capacity of the generation facility, including fuel cost sensitivities under various reasonable scenarios;**
> **(c) projected energy purchased or produced by the utility from a renewable energy resource;**
> **(d) a summary of the electrical transmission investments planned by the utility;**
> **(e) several resource portfolios developed with the purpose of fairly evaluating the range of demand-side, supply-side, storage, and other technologies and services available to meet the utility's service obligations. Such portfolios and evaluations must include an evaluation of low, medium, and high cases for the adoption of renewable energy and cogeneration, energy efficiency, and demand response measures, including consideration of the following:**
>
> > **(i) customer energy efficiency and demand response programs;**
> > **(ii) facility retirement assumptions; and**
> > **(iii) sensitivity analyses related to fuel costs, environmental regulations, and other uncertainties or risks;**

(f) data regarding the utility's current generation portfolio, including the age, licensing status, and remaining estimated life of operation for each facility in the portfolio;
(g) plans for meeting current and future capacity needs with the cost estimates for all proposed resource portfolios in the plan;
(h) an analysis of the cost and reliability impacts of all reasonable options available to meet projected energy and capacity needs; and
(i) a forecast of the utility's peak demand, details regarding the amount of peak demand reduction the utility expects to achieve, and the actions the utility proposes to take in order to achieve that peak demand reduction.

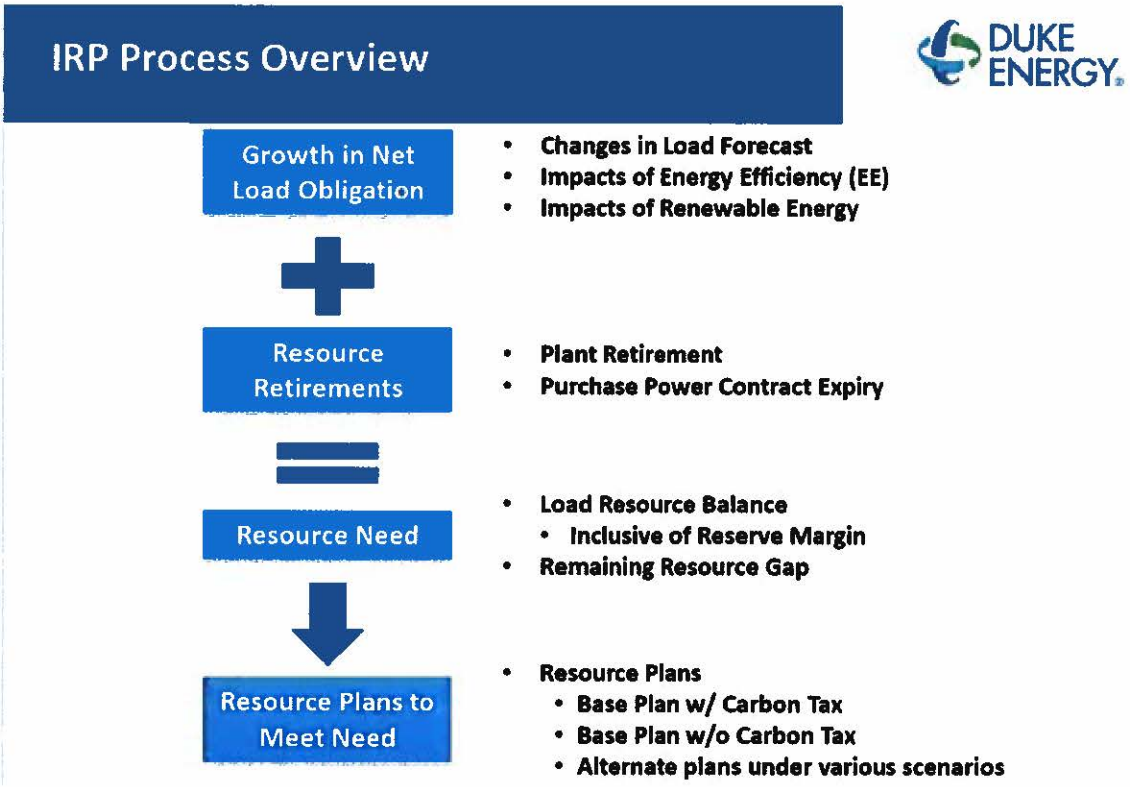
(2) An integrated resource plan may include distribution resource plans or integrated system operation plans.

II. IRP Process Overview

Duke Energy is uniquely situated. DEC has one, single IRP for its system, which details resources needed to serve its customers in both South and North Carolina. DEP, too, has one, single IRP for its system, which details resources needed to serve its customers in both South and North Carolina. To be clear, for Duke Energy, there is neither an NC IRP nor an SC IRP for either DEC or DEP. Instead, each of the Companies has its own single IRP that is filed in both states. As such, the IRPs must meet the extensive requirements of both states. In meeting those requirements, it is important to put into context the level of detail that goes into an IRP process, and why it takes several months and an enormous amount of coordination to put an IRP together.

Simply put, during the IRP process, the utility must consider the growth in net load obligation, which consists of changes in load forecast, impacts of energy efficiency ("EE"), and the impacts of renewable energy. The growth in net load obligation is then combined with the utility's available resources. Available resources must include not only existing resources, but also planned additions, unit retirements and purchased power contract expirations.

When the growth in net load obligation is considered in conjunction with the available resources, the utility is then able to determine its resource need. The difference between the net load obligation, inclusive of reserve margin, and the available resources represents the load resource balance, or the resource need. Once the utility has determined its resource need, it must consider resource plans to meet those needs. The Companies present multiple plans including: 1) base plan with carbon tax, 2) base plan without carbon tax, and 3) alternate plans have been developed under various scenarios. A diagram detailing this process is provided below:



III. Impact of South Carolina's Act 62 on the IRP Process

A. IRP Submission

S.C. Code Ann. § 58-37-40 provides that "[e]ach electrical utility must submit its integrated resource plan to the commission. The integrated resource plan must be posted on the electrical utility's website and on the commission's website." It is important to note that, while an IRP is an important planning document, it does not authorize the utility or any other stakeholder to develop new resources. However, there are several other regulatory proceedings that reference the IRP, including: 1) EE/Demand Side Management ("DSM") Filings, 2) fuel filings, 3) certificate of environmental compatibility and public convenience and necessity ("CECPCN") Applications, 4) avoided cost proceedings, and 5) rate case proceedings.

Significantly, the utility has the sole responsibility for filing a robust IRP that is compliant with state and federal mandates, while balancing multiple objectives. As discussed in greater detail later, these objectives include developing a plan that provides for reliable service for the utility's customers 24 hours per day, 7 days per week and meets or exceeds all federal, state, and local environmental regulations all while doing so at the lowest reasonable cost to the utility's customers.

B. Forecast and Peak Demand

S.C. Code Ann. § 58-37-40(B)(1) provides in part that an IRP must include "a long-term forecast of the utility's sales and peak demand under various reasonable scenarios." The Companies' peak demand and energy forecast, which includes Residential, Commercial, Industrial, Other Retail, and Wholesale customers, is updated in the spring of

each year, which impacts the timing of when an IRP filing is most reasonable for DEC and DEP.

The forecast is developed with econometric models using key factors such as income, electricity prices, industrial production indices, weather, appliance efficiency trends, rooftop solar trends, and electric vehicle trends.

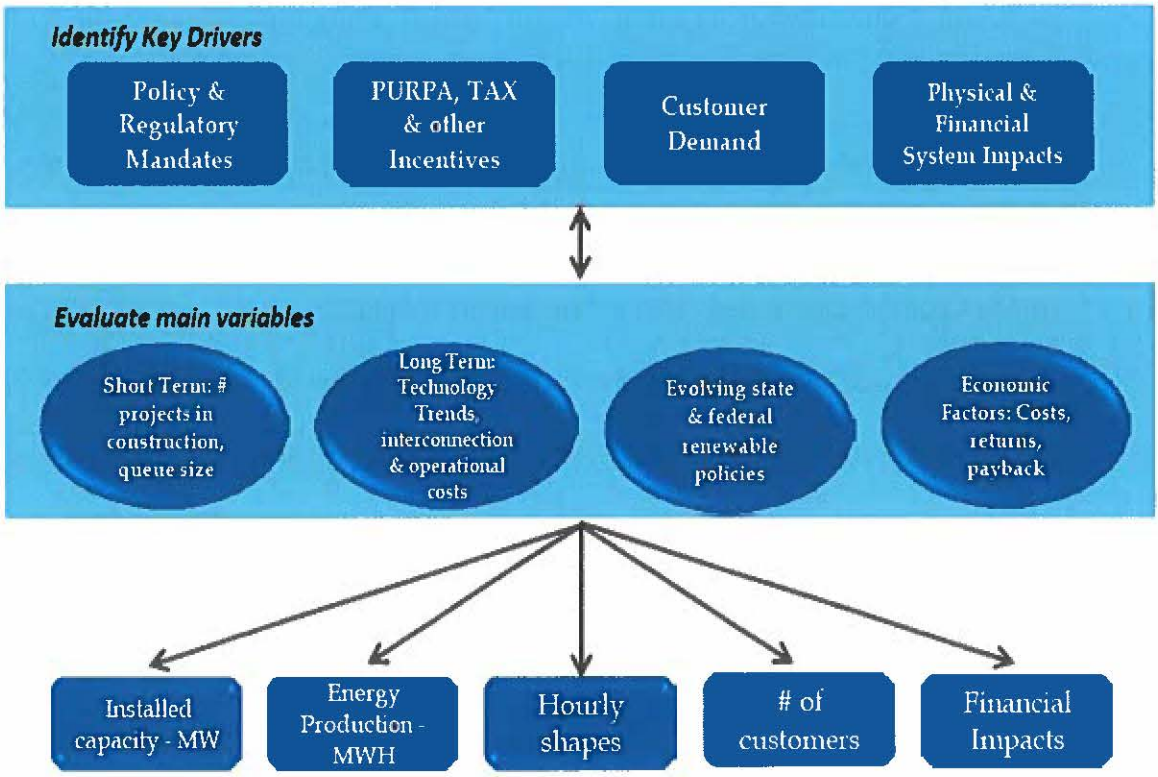
Peak demand and energy forecasts incorporate the impact of EE, which can stress the net load obligation depending on whether a high or low EE scenario is analyzed.

C. Type of Generation Technology

S.C. Code Ann. § 58-37-40(B)(1)(b) provides that an IRP must include "the type of generation technology proposed for a generation facility contained in the plan and the proposed capacity of the generation facility, including fuel cost sensitivities under various reasonable scenarios." The Companies consider a variety of technologies when developing the IRPs and the resource plans will include: 1) the types of technology selected and 2) the capacity of the selected technology, including the nameplate and contribution to winter and summer peak demand. Furthermore, each portfolio will be evaluated under a variety of fuel price, CO_2 constraints, and capital cost sensitivities.

D. Projected Energy Purchased or Produced from a Renewable Energy Resource

S.C. Code Ann. § 58-37-40(B)(1)(c) provides that an IRP must include "projected energy purchased or produced by the utility from a renewable energy resource." The diagram below provides the process for forecasting renewable generation, which is a consideration in the IRP process.



E. Investments

S.C. Code Ann. § 58-37-40(B)(1)(d) provides that an IRP must include "a summary of the electrical transmission investments planned by the utility." The Companies' IRP will provide known transmission projects needed to meet both organic customer load growth on the system, as well as signed interconnection agreements. The IRP will also include a discussion of the adequacy of the transmission systems of DEC and DEP. However, it will not include site-specific transmission needs for yet-to-be-determined transmission projects for resources in the interconnection queue because these projects are not yet available.

F. Resource Portfolios

S.C. Code Ann. § 58-37-40(B)(1)(e) provides that an IRP must include "several resource portfolios developed with the purpose of fairly evaluating the range of demand-

side, supply-side, storage, and other technologies and services available to meet the utility's service obligations. Such portfolios and evaluations must include an evaluation of low, medium, and high cases for the adoption of renewable energy and cogeneration, energy efficiency, and demand response measures."

As part of this requirement, the Companies must consider customer EE and DSM programs. The Companies plan to include low, medium, and high EE/DSM cases in their 2020 IRPs.

Act 62 further requires the Companies to consider facility retirement assumptions and both DEC and DEP plan to present coal unit retirement analysis in the 2020 IRPs.

Finally, under Act 62, the Companies must consider sensitivity analyses related to fuel costs, environmental regulations, and other uncertainties or risks. The Companies' 2020 IRPs will include multiple portfolios accounting for sensitivities on key variables including a range of renewables and EE forecasts. Furthermore, all portfolios will be analyzed under a variety of scenarios that vary fuel prices, CO_2 constraints and capital costs.

G. Generation Portfolio

S.C. Code Ann. § 58-37-40(B)(1)(f) provides that an IRP must include "data regarding the utility's current generation portfolio, including the age, licensing status, and remaining estimated life of operation for each facility in the portfolio." The Companies will include the following information regarding the utilities' current generation portfolios in their IRP filings: 1) unit name, 2) winter rating (MW), 3) summer rating (MW), 4) location, 5) fuel type, 6) resource type, 7) date commissioned, 8) licensing status, and 9) planning retirement date.

H. Capacity Needs

S.C. Code Ann. § 58-37-40(B)(1)(g) provides that an IRP must include "plans for meeting current and future capacity needs with the cost estimates for all proposed resource portfolios in the plan." The Companies will continue to provide an in-depth analysis of the costs for each proposed resource portfolio under multiple scenarios using a Present Value of Revenue Requirements ("PVRR") methodology.

I. Cost and Reliability Impacts

S.C. Code Ann. § 58-37-40(B)(1)(h) provides that an IRP must include "an analysis of the cost and reliability impacts of all reasonable options available to meet projected energy and capacity needs." The Companies' IRPs will present detailed analytics in the areas of resource adequacy and renewable and storage reliability impacts. The IRPs will also contain a discussion of the costs of a range of technologies evaluated for meeting projected energy and capacity needs including: 1) conventional gas generation, 2) renewable resources, 3) energy storage at varying capacities, and 4) EE and DSM Options. Furthermore, the Companies will discuss emerging technologies, along with the rationale for including or not including specific technologies in the resource plans within the IRP filings.

J. Peak Demand

S.C. Code Ann. § 58-37-40(B)(1)(i) provides that an IRP must include "a forecast of the utility's peak demand, details regarding the amount of peak demand reduction the utility expects to achieve, and the actions the utility proposes to take in order to achieve that peak demand reduction." The peak demand forecast that the Companies will include in their IRPs will include the impact of EE at varying levels of penetration. The 2020 IRPs

will also include a summary of EE and DSM programs (DSM programs being an example of a dispatchable resource), including: 1) name of program, 2) number of participants, 3) cost and savings projections, 4) voltage control activations, and 5) demand response activations.

K. Integrated System Operation Plan

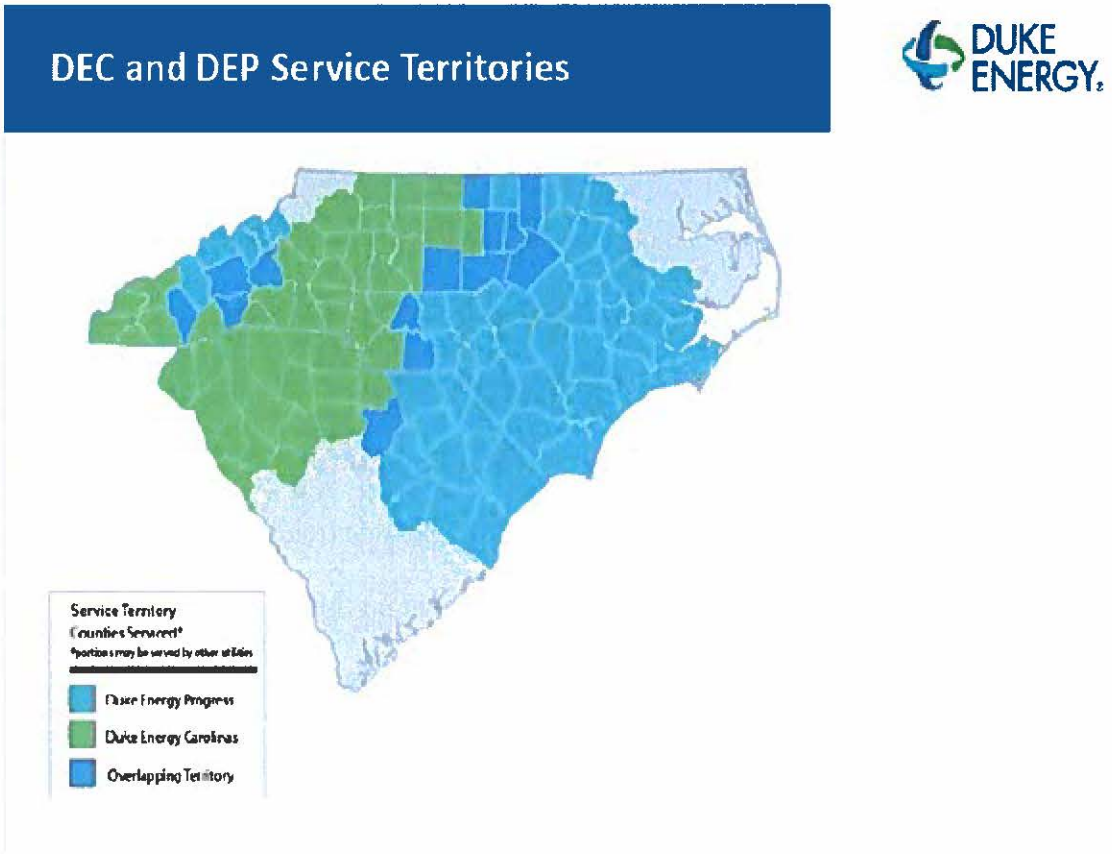
S.C. Code Ann. § 58-37-40(B)(2) provides that an IRP may include "distribution resource plans or integrated system operation plan." The Companies are developing an Integrated System & Operations Planning ("ISOP") methodology that will evolve and be integrated into the IRP process over the next several years. As part of the ISOP methodology integration, the Companies plan to begin to include advanced methodologies for comparing storage and other distributed, non-traditional resources to traditional generation alternatives by 2022. After 2022, the utilities will leverage ISOP for enhanced evaluation of emerging technologies and demand-side trends, and are currently conducting stakeholder engagement meetings to garner input on this process.

L. Commission Review of Resource Plans

Part C of Act 62 requires the PSCSC to "have a proceeding to review each electrical utility's integrated resource plan. As part of the integrated resource plan filing, the commission shall allow intervention by interested parties. The commission shall establish a procedural schedule to permit reasonable discovery after an integrated resource plan is filed in order to assist parties in obtaining evidence concerning the integrated resource plan, including the reasonableness and prudence of the plan and alternatives to the plan raised by intervening parties." Of course, the Companies will fully participate in this process.

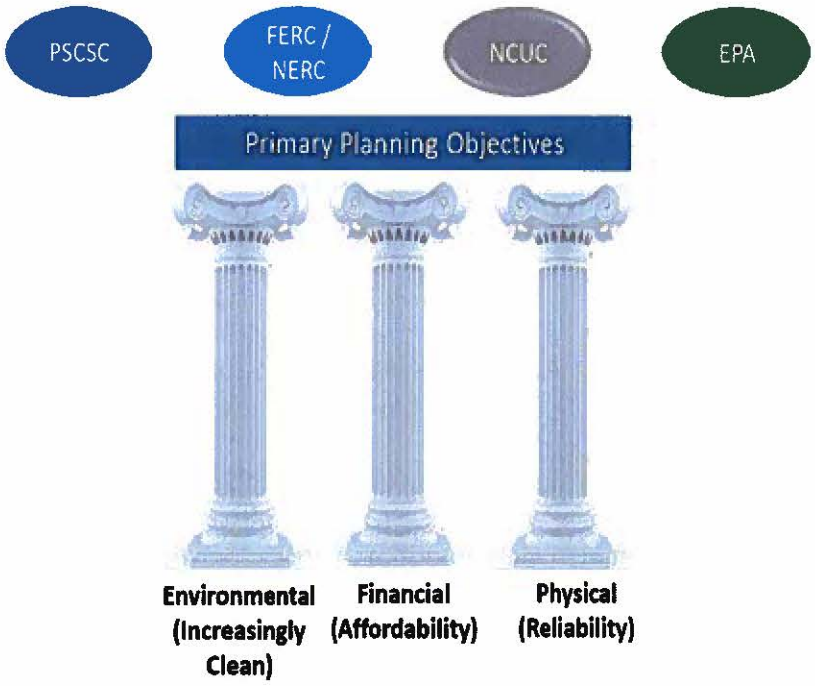
IV. Challenges to IRP Process

There are many factors that the utility must consider throughout the IRP process. Again, DEC and DEP have service territories that span both South Carolina and North Carolina, as evidenced in the image below.



Developing state-specific resource plans is not possible because DEC and DEP each operate their individual systems as single balancing authorities that cross state lines. Furthermore, the Companies are regulated by many agencies, including the PSCSC, North Carolina Utilities Commission ("NCUC"), Federal Energy Regulatory Commission

("FERC"), and Environmental Protection Agency ("EPA"), as demonstrated by the image below.



The Companies' IRPs must consider environmental factors and legislation, especially the movement toward increasingly clean energy. The Companies must also consider financial factors, such as the affordability of available technologies. Furthermore, the Companies must consider physical factors, such as the reliability of the energy the Companies are providing to their customers.

One example of the many factors that must be considered by the Companies during the IRP process relates to environmental factors. In 2005, the Companies had a CO_2 baseline of 76 million tons. Currently, the Companies have projected that they will have CO_2 emissions of between 30 and 35 million tons by 2030. Through the IRP process, the Companies have also considered a scenario in which all existing nuclear generation is replaced with natural gas combined cycles, which would result in an increase of

approximately 33 million tons of CO_2. In other words, that scenario would double the Companies' current projected CO_2 emissions for 2030.

Another example of an environmental factor that the Companies must consider is what will be needed to meet the Companies' internal environmental goals. For instance, the Companies will need Zero Emitting Load Following Resources ("ZELFRs") by 2050 to meet their net-zero goal. Emerging technologies that can assist with that goal may include:

- Small Modular Reactors (SMRs) – NuScale expected license approval by the NRC in 2022, with first unit on line (Utah) by 2027. Closest to commercial operation.
- Natural Gas CC with Carbon Capture and Sequestration – Geology not good in the Carolinas, would have to transport to other areas of the country.
- Hydrogen fueled CC (potential to utilize existing CC fleet).
- Bio Fuels – Exxon commercial currently on television stations. Would be very land intensive to provide significant amounts of fuel.

V. Conclusion of IRP Process

Per Act 62 requirements, the Commission is expected to communicate its decision on an IRP in 300 days from filing. In determining whether a proposed IRP is the most reasonable and prudent means of meeting energy and capacity needs, the Commission must determine if the IRP appropriately balances the following factors: a) resource adequacy and capacity to serve anticipated peak electrical load, and applicable planning reserve margins; b) consumer affordability and least cost; c) compliance with applicable state and federal environmental regulations; d) power supply reliability; e) commodity price risks; f) diversity of generation supply; and g) other foreseeable conditions that the Commission determines to be for the public interest.

VI. Conclusion

The Companies are committed to developing and presenting robust and prudent IRPs that are compliant with Act 62 and North Carolina regulations. The Companies will strive for a transparent IRP process for all stakeholders throughout the development and filing of their 2020 IRPs. Given the dynamic changes taking place in the industry, the IRP simply represents the most current plan at a given point in time. As technologies develop, new state and federal policies emerge, customer demand and energy needs evolve and other market forces change, future IRPs will incorporate these changing conditions.

Respectfully submitted, on this the 30th day of January, 2020.

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